4 Reasons to Use All-Flash Storage to Consolidate Cloud Applications

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Cloud computing is changing the way organizations develop and deliver applications. Development teams can use private, public or hybrid clouds to quickly set up new infrastructures that don't impact existing resources or operations. When a project is completed, resources can go back into a centralized pool and be reused. This accelerates time to value and significantly reduces costs.

From a delivery standpoint, cloud models are forcing organizations to ensure that applications are more interoperable, mobile and scalable so that business processes and information are not isolated. Enterprises increasingly view cloud as an enabling technology for more agile, integrated and cost-efficient IT. Cloud is also a critical investment in allowing IT to transition to a service-centric model for application development and delivery.

One of the important ways in which IT teams can be more efficient in developing and delivering applications in private and hybrid cloud environments is by consolidating a larger number of applications on fewer storage systems. The ability to do this type of application consolidation and unlock its many benefits is a direct result of the shift to all-flash storage platforms in data centers.

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By consolidating applications on an all-flash, cloud-centric platform, IT has the opportunity to reduce costs, lower risk and support a more integrated and interoperable infrastructure.

Flash storage, with its random access properties, allows many applications to share the same storage without conflict. An all-flash platform not only supports mixed workloads, but it also can deliver major performance improvements, simplified deployments, lower total cost of ownership (TCO) and longer lifecycles that mitigate the need to do forklift upgrades every three or four years.

In this paper, we look at the top four reasons to use all-flash storage as a platform to consolidate applications in private and hybrid cloud environments. We will also discuss the key features and functions to look for in an all-flash storage platform that will help you maximize cost savings, strengthen agility and simplify management, administration and scaling/upgrading.

Reason No. 1: Simplify IT Management and Administration

The current transition from disk to flash is analogous to the transition from tape to disk that has already happened in backup. At first, vendors in the backup world created hybrids of disk and tape, hoping to get the benefits of both technologies. The result, however, was high complexity—particularly when compared to new solutions built from the ground up for the new capabilities offered by disk.

In much the same way, legacy vendors of spinning disks have created hybrid storage arrays that mix both disk and flash. These hybrid solutions add extra layers of complexity to the already complex processes of storage management and administration. Flash media offers a radically different set of capabilities than disk, and fully leveraging these new capabilities requires new architectures with purpose-built software.

Companies that designed all-flash technology from the ground up have developed architectural models that

are much simpler and less costly to manage and deploy. These all-flash architectures allow IT to shed the disk-based complexity around traditional RAID configuration, performance tuning and tiers. Certain all-flash arrays can be deployed in minutes without the need for a storage specialist. In addition, an all-flash array with a fully modular design enables simple and non-disruptive upgrades by allowing each component to be hot-swapped at any time.

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This level of simplicity not only reduces TCO, but is critical if you are consolidating applications on a single storage platform. It enables you to be up and running faster while mitigating the risks involved in having multiple applications and workloads on a single all-flash array. Different applications have different patterns of reading and writing data. On disk-based arrays this leads to contention and performance issues. All-flash arrays do not have these issues, thus enabling greater levels of consolidation.

However, consolidating applications has traditionally come with another trade-off—forklift upgrades and migrations. One of the main reasons IT teams don't want to put too many applications on a legacy disk-based array is because they will have more applications to migrate with each storage refresh every three or four years, exposing the organization to unnecessary risks and costs.

New all-flash architectures, however, can eliminate the need to do refreshes. You can utilize technology in which every component of the array can be field-upgraded. In addition, you can purchase key elements of the upgrade as part of a subscription model whereby hardware upgrades are covered under a maintenance contract.

With this model you can consolidate without trade-offs, yielding simpler management and administration for your data center and the applications you support. Forrester Research has estimated that simplification of deployment and management tasks using this deployment model would save a typical mid-market enterprise more than $200,000 over a three-year period.[1]

Reason No. 2: Improve Performance and Application Availability

The first reason most IT decision-makers have deployed flash storage has been to leverage the performance benefits of flash versus spinning disk arrays. However, even with predictions of rapid growth, many experts have been surprised at just how quickly all-flash solutions have penetrated data center and cloud environments. For instance, IDC noted that the all-flash market reached $1.6 billion in 2014—two years faster than originally projected.[2]

This accelerated growth has been driven by several factors. For one, prices of flash media have come down faster than anticipated. In addition, the rapid growth of hybrid and private cloud deployments has required greater performance and reduced complexity from next-generation storage solutions. Finally, leading all-flash vendors have been innovative and responsive to market requirements with cloud-centric technologies and new business models.

Just a few years ago, it probably would have been premature to look to all-flash as a means to consolidate enterprise applications. The solutions were not as fully featured and scalable. Today, however, organizations can purchase all-flash arrays with varying configurations, and they can also utilize pre-validated solutions and reference architectures designed specifically to enable multi-workload consolidation.

The benefits to the business are significant, bringing orders-of-magnitude performance improvements to a

1 "The Total Economic Impact of Pure Storage FlashArray FA-400 Series Storage Solutions," Forrester Research, August 2014
2 "Flash-Based Storage is Growing Faster Than Anticipated," Bloomberg Business, Aug. 12, 2015

broader range of applications at a lower TCO. Application availability is enhanced when IT can eliminate downtime during upgrades and reduce risk by eliminating the need for migrations.

Reason No. 3: Reduce Total Cost of Ownership

One of the ongoing misconceptions about all-flash storage is that it is still much more expensive than spinning disks for tier one and other production environments. When compared to using a big monolithic tier one performance-configured spinning disk array for a single application, using an all-flash solution will typically be less expensive.

All-flash vendors have driven down prices by building new architectures designed for cloud computing. One example is the model described earlier, whereby you purchase your storage infrastructure in a service-like model, with your maintenance contract including regular upgrades of key components, such as controllers. This way, your infrastructure constantly stays current and there is never a need for migrations or forklift upgrades. In essence, the array evolves and updates around the data, keeping the data in place and online.

According to IDC, the cost implications of this new model are significant. Assuming only one technology refresh over a six-year cycle, capital costs will be one-third to one-half of purchasing a new array. Maintenance costs will be roughly half as much, IDC reports.[3]

A Total Economic Impact study by Forrester Research™ estimated that a global mid-market enterprise would experience an average increase in profitability of more than $960,000 over a three-year period, with an ROI of 102%. Driving these improvements are business benefits, simplification, data center rack unit savings, power and cooling savings, and software license and maintenance savings.[4]

3 "Pure Storage Introduces a New Technology Upgrade Model with Evergreen Storage," IDC, June 2015

4 Ibid, footnote #2, Bloomberg

IT can further reduce TCO through the use of advanced compression and deduplication technologies only available in all-flash arrays. For example, an all-flash array reduces the storage profile by an average ratio of approximately 3:1, compared to traditional disk storage solutions. When you think about application consolidation and extending these cost savings over a range of enterprise applications, the positive impact of using an all-flash array is dramatic for enterprise IT budgets.

Reason No. 4: Enhance IT and Business Agility

Enterprises are increasingly looking at cloud models to improve business agility and accelerate time to value. Deploying a storage platform that has been designed for cloud environments can provide significant business benefits in developing and delivering applications.

Assuming only one technology refresh over a six-year cycle, capital costs will be one-third to one-half of purchasing a new array, and maintenance and support costs will be roughly half as much.

With an all-flash array as part of a hybrid cloud or private cloud model, development teams can access the infrastructure's highest performing storage resources as part of their agile test and development environments. Multiple projects and environments can coexist on the same all-flash array, reducing the need to file requests with IT to purchase a new array. Those development and test environments also won't impact the existing applications that may already be running on the all-flash array.

Test and development operations also benefit disproportionately from using industry-leading compression

With an all-flash array as part of a hybrid cloud or private cloud model, development teams can access the infrastructure's highest performing storage resources as part of their agile test and development environments. Time to productivity for developers can be dramatically reduced, with development and testing environments spinning up and down in near real-time.

and deduplication techniques. Test and development teams can typically consume a lot of storage, with many snapshots and repeated processes. With a storage solution that can deliver data reduction ratios of 5:1 or more, IT can reduce the amount of storage consumed by developers, and thus also reduce the amount of raw storage that must be purchased.

What to Look for in an All-Flash Storage Platform

The leading legacy storage architectures were designed 20-plus years ago for a different paradigm in computing. They have served customers fairly well over that period, but are fast becoming obsolete as organizations increasingly embrace cloud and cloud-like models. To maximize cloud efficiencies, IT must embrace storage architectures that are built around all-flash storage and designed from the ground up for the cloud era.

Application consolidation can be an important cloud initiative. By consolidating applications on an all-flash, cloud-centric platform, IT has the opportunity to reduce costs, lower risk and support a more integrated and interoperable infrastructure. But for any organization thinking about application consolidation, it is important to closely evaluate the features and functions of the underlying all-flash storage platform. You want to make sure that your platform not only delivers the performance you need, but also enables you to reduce costs, eliminate migrations, simplify operations and support cloud-enabled business agility.

Pure Storage is a leading innovator in developing all-flash storage that has been an enabling technology for cloud models. When it comes to application consolidation, innovative business and technology models such as Pure's Evergreen Storage and advanced compression and deduplication set Pure apart from other all-flash providers. In addition, customers can utilize pre-validated and pre-tested Pure Storage solutions that are designed to support seamless development and multi-workload consolidation. To learn more about how Pure Storage can help your organization consolidate applications in cloud environments, please visit Pure Storage at **www.purestorage.com/cloud**.